



# HOW TO MAKE AN INDUSTRIAL ZONE MORE ENVIRONMENTALLY FRIENDLY? THE CASE OF ROTTERDAM HARBOR.

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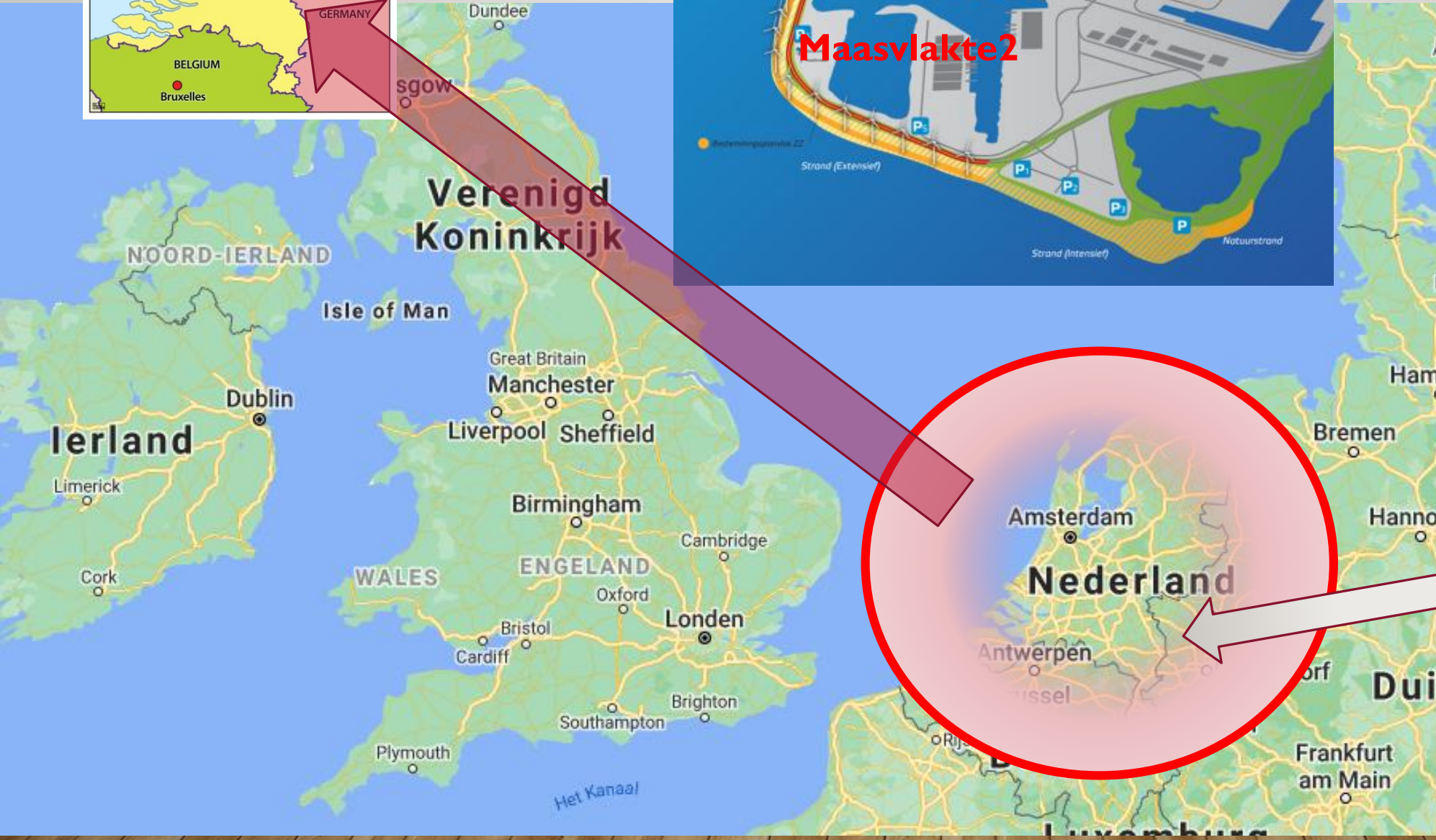
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# LOCATION





Widening the beach with  
sand suppletion

Extra work space

## THE SANDY SHORELINE





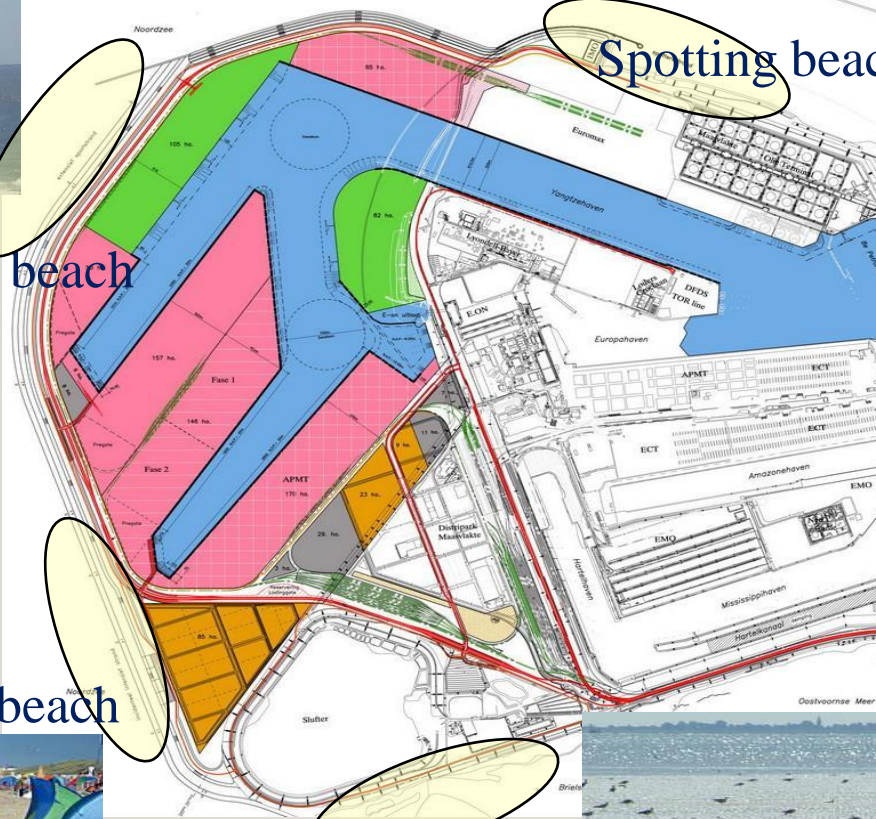
## NORTHWESTERN CORNER, HARD CONSTRUCTION MATERIALS







Activity beach



Leisure beach

Nature beach



## THE DIFFERENT PURPOSES OF THE BEACH AND OF THE INDUSTRIAL AREA

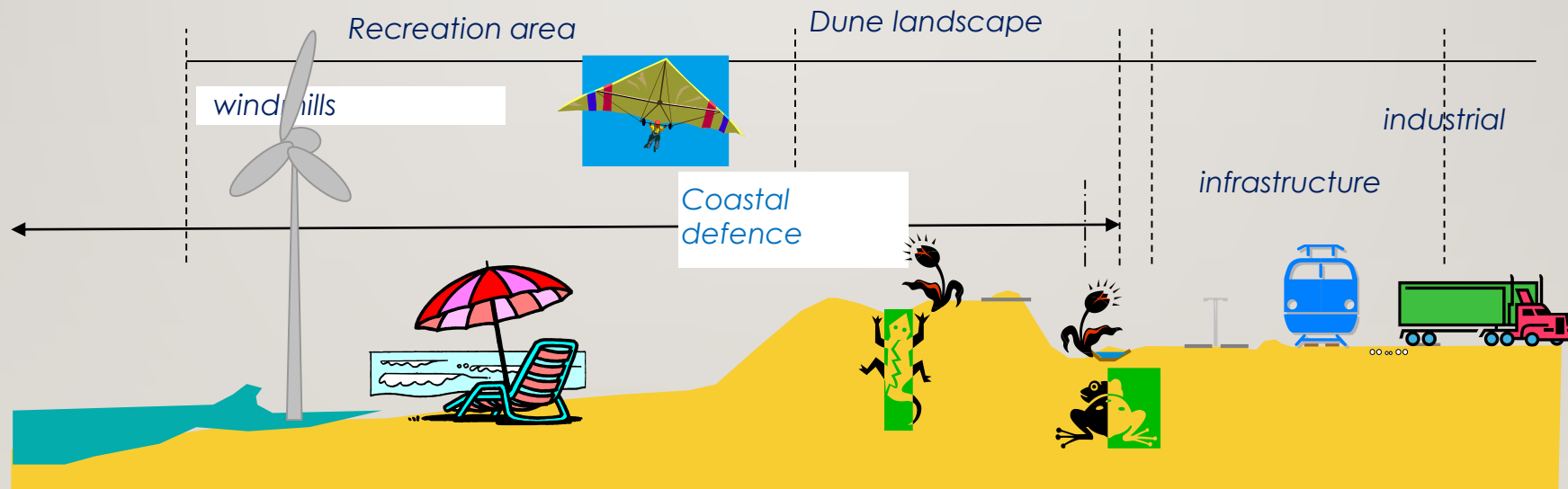
containerterminals

Chemical industry or energy

distribution

# MULTIFUNCTIONAL SEAWALL AND CONFLICTING INTERESTS

- Coastal defence
  - Recreation
  - Dune landscape
- Nature
  - Infrastructure
  - Wind mills



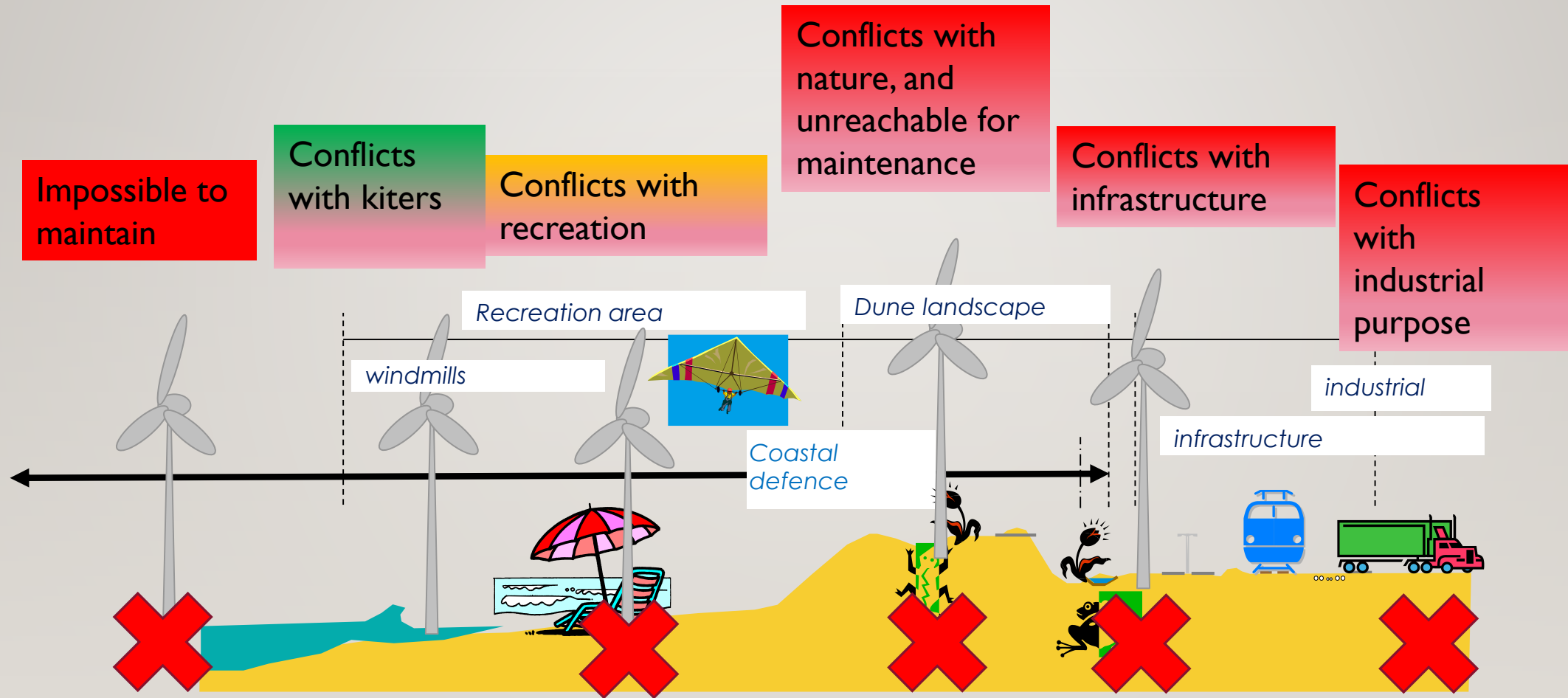


# A BUSINESS CASE HAS TO BE POSITIVE

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- Try to eliminate uncertainties
- Create the lowest investment costs, minimal extra e.g. extra sand buffer for safety
- Choose the minimal lifetime to be an asset for the investors
- Assure the minimum quantity / volume of electricity that will be bought

# IMPACT LOCATION WINDMILL ON OTHER FUNCTIONS

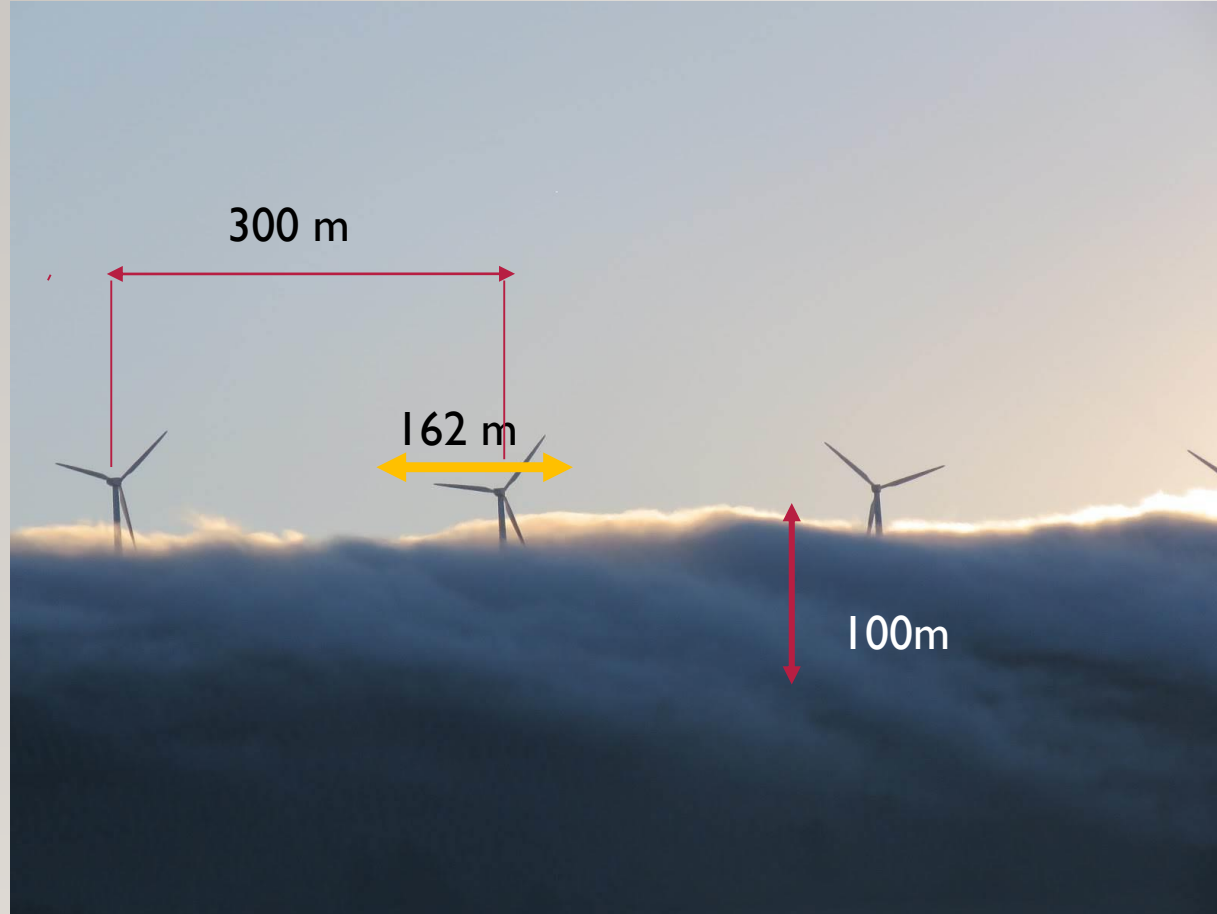




MAP OF THE  
WINDFARM



# SIZE MATTERS, THE LARGEST WINDMILLS **ONSHORE**





# THE CONFLICTS OF INTEREST

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## EXISTING FUNCTIONS

- Have each a demarcated area
- Don't want to give in
- Claim existing rights
- Compete to get more space (nature, recreation)
- Are well known

## RENEWABLE ENERGY PRODUCTION

- Conquers with the existing functions
- Is necessary for combatting climate change
- Is developing very fast
- Has little references from the past
- Has to deal with NIMBY (not in my backyard)

# THE SOLUTION

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- Create a level playing field: **share information**
- Take comments serious: **adjust where possible**
- Try to compensate for negative impacts: **deliver alternatives**
- Act pro-active to potential negative impacted people or organisations: **show your commitment**
- Deliver kites an alternative location
- Outcome: **No serious appeal to court!**





***Thanks for your attention***

# **Recap lessons learned, 2019**

**-top-down is not efficient; facilitate interface  
“bottom up – top down”**

**-mitigation/adaptation measures stimulate  
innovation and economy**

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**-sustainable development only possible when  
all layers of society are collaborating**

**-adaptive leadership for the “bottom up – top  
down” interface**